

CLAIMS

What is claimed is:

1. A base station system adapted to provide simultaneous reuse of channels at said base station, said system comprising:

a multiple narrow beam antenna system adapted to provide isolation of signals radiated therein, wherein sectors of said base station are associated with different ones of said antenna beams, wherein a sector control channel is associated with each sector of said base station;

base station radio circuitry adapted for providing a plurality of discrete simultaneous communications using a first communication channel in different ones of said sectors; and

circuitry providing controllable coupling of said base station radio circuitry to said multiple narrow beam antenna system.

2. The system of claim 1, wherein a different said sector control channel is associated with each sector of said base station.

3. The system of claim 1, wherein said sector control channel is a multiple beam antenna access channel adapted for use in identifying a most preferred antenna beam of said multiple narrow beam antenna system for use with each of a plurality of remote stations in communication with said base station.

4. The system of claim 3, wherein said sector control channel includes a forward link data packet comprising synch bits, overhead information, RSSI information, number of antenna beams, current antenna beam, and directed message

5. The system of claim 3, wherein said sector control channel includes a reverse link data packet comprising a leading and trailing guard time, synch bits, RS identification information, and report message.

6. A base station system adapted to provide simultaneous reuse of channels at said base station, said system comprising:

a multiple narrow beam antenna system adapted to provide isolation of signals radiated therein, wherein sectors of said base station are associated with different ones of said antenna beams;

base station radio circuitry adapted for providing a plurality of discrete simultaneous communications using a first communication channel in different ones of said sectors; and

circuitry providing controllable coupling of said base station radio circuitry to said multiple narrow beam antenna system, wherein said controllable coupling circuitry is operable to redefine sectors of said base station by associating different ones of said antenna beams therewith

7. The system of claim 6, wherein said controllable coupling circuitry is adapted to provide independently controllable coupling of each one of said plurality of discrete simultaneous communications using said first communication channel to ones of said antenna beams.

8. The system of claim 7, wherein said controllable coupling circuitry is adapted to couple each one of said plurality of discrete simultaneous communications using said first communication channel to any one antenna beam of a sector associated with said each one of said plurality of discrete simultaneous communications.

9. The system of claim 6, wherein said first channel is a time division duplex channel including a forward link portion and a reverse link portion, wherein said forward link portion and said reverse link portion are of different durations for a first remote station in communication with said base station and a second remote station in communication with said base station.

10. The system of claim 6, wherein said first channel is a frequency division channel.

11. The system of claim 6, wherein said first channel is a time division channel.

12. The system of claim 6, wherein said first channel is a code division channel.

13. The system of claim 6, wherein said multiple narrow beam antenna system is a fixed multiple beam antenna system.

14. The system of claim 6, wherein said multiple narrow beam antenna system is an adaptive array antenna system.

15. The system of claim 6, wherein said multiple narrow beam antenna system provides a plurality of substantially non-overlapping antenna beams.

16. The system of claim 6, wherein said multiple narrow beam antenna system provides a plurality of substantially overlapping antenna beams.

17. A wireless communication system adapted to provide reuse of channels at a base station, said system comprising:

at least one base station comprising:

a multiple narrow beam antenna system adapted to provide wireless communications to remote stations to the exclusion of other remote stations, wherein multiple ones of said antenna beams define sectors of said base station and said provision of wireless communications to the exclusion of other remote stations includes exclusion of other remote stations disposed in a same sector; and

base station radio circuitry adapted for wireless communication with a number of remote stations utilizing a first communication channel simultaneously in different ones of said sectors;

a plurality of remote stations, wherein said plurality of remote stations include said number of remote stations, ones of said plurality of remote stations comprising:

remote station radio circuitry adapted for wireless communication utilizing said first communication channel; and

circuitry providing controllable coupling of said base station radio circuitry to said multiple narrow beam antenna system, wherein said controllable coupling circuitry is adapted to provide independently controllable coupling of multiple discrete signals of said first channel to ones of said antenna beams, wherein said controllable coupling circuitry is adapted to couple ones of said antenna beams to different portions of said base station radio circuitry to thereby provide adjustable sector boundaries.

18. The system of claim 17, wherein said controllable coupling circuitry is adapted to couple each one of said multiple discrete signals of said first channel to any antenna beam of a sector associated with said each one of said multiple discrete signals.

19. The system of claim 17, wherein said controllable coupling circuitry includes a switch matrix.

20. The system of claim 17, wherein said first channel is a time division duplex channel including a forward link portion and a reverse link portion.

21. The system of claim 17, wherein said forward link portion and said reverse link portion are of different durations for a first remote station of said number of remote stations and a second remote station of said number of remote stations.

22. The system of claim 17, wherein said first channel is a frequency division channel.

23. The system of claim 17, wherein said first channel is a time division channel.

24. The system of claim 17, wherein said first channel is a code division channel.